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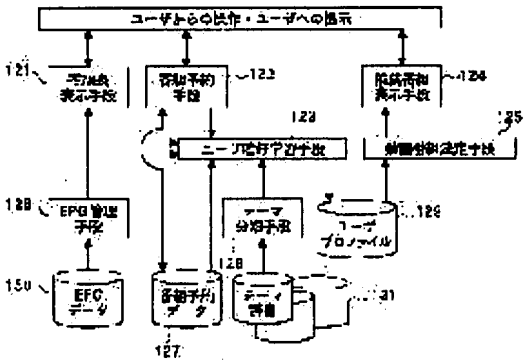
(54) PROGRAM-RECOMMENDING SYSTEM AND PROGRAM-RECOMMENDING METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To realize a program-recommending method and a program- recommending system, capable of recommending programs more flexibly and precisely to users which are unavaible to users in conventional keyword learning.
SOLUTION: This program recommending method is carried out through a receiver which receives a broadcast that sends out information on the contents of programs and programs, and user profiles, which indicate programs that users like by the use of a plurality of themes which are each given a numerical value, are formed, a theme classification is conducted to give a numerical value to each of the programs by the use of a theme dictionary which contains the above themes that are given key words, the recommended programs are decided, on the basis of the user profiles and the numerical value of the theme given to each of the programs.



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CLAIMS

[Claim(s)]
[Claim 1] It is the program recommendation approach performed with the equipment which receives the broadcast to which a program is sent with the information which shows the content of the program. The user profile which shows the program which a user likes by two or more themes given to the numeric value by each is created. The theme dictionary in which the keyword was given to each of two or more of said themes is used. The program recommendation approach characterized by determining the program which performs the classification according to theme which gives each of two or more themes a numeric value about each of two or more programs, and is recommended from said user profile and the numeric value of two or more themes given to each of two or more programs.
[Claim 2] The program recommendation approach characterized by creating a user profile by performing the classification according to theme in the program recommendation approach according to claim 1 to the program to which the user carried out program reservation in the past, or two or more programs which were specified as a favorite program.
[Claim 3] The program recommendation approach that the classification according to theme at the time of creating a user profile is characterized by making into the mark in the theme of the program the unique number of the keyword of the theme dictionary contained in the information which shows the content of said program in the program recommendation approach according to claim 1 or 2.
[Claim 4] The characterizing [the classification according to theme at the time of creating a user profile / by for the keyword of the theme dictionary contained in program information stating, and making a number into the mark in the theme of the program]-in program recommendation approach according to claim 1 or 2 program recommendation approach.
[Claim 5] The program recommendation approach characterized by integrating and totaling the numeric value given to the theme corresponding to the numeric value given to two or more themes for every program, respectively in a user profile in the program recommendation approach according to claim 1 to 4, and considering the result as whenever [recommendation].
[Claim 6] The program recommendation approach characterized by doubling and displaying the name of the theme which contributed most on recommendation in the program recommendation approach according to claim 1 to 5 in case the list of recommendation programs is displayed.
[Claim 7] The program recommendation approach characterized by creating a user profile according to an individual about two or more users in the program

recommendation approach according to claim 1 to 6.
[Claim 8] The program recommendation approach characterized by the information which shows the content of the program being EPG data in the program recommendation approach according to claim 1 to 7.
[Claim 9] It is the program recommendation system performed with the equipment which receives the broadcast to which a program is sent with the information which shows the content of the program. The user profile which shows the program which a user likes by two or more themes given to the numeric value by each is created. Moreover, a user taste study means to perform the classification according to theme which gives each of two or more themes a numeric value about each of two or more programs using the theme dictionary in which the keyword was given to each of two or more of said themes, The program recommendation system characterized by having a recommendation program decision means to determine the program recommended from said user profile and the numeric value of two or more themes given to each of two or more programs.
[Claim 10] It is the program recommendation system characterized by creating a user profile by performing the classification according to theme to the program to which, as for the user taste study means, the user carried out program reservation in the past in the program recommendation system according to claim 9, or two or more programs which were specified as a favorite program.
[Claim 11] The program recommendation system by which the classification according to theme at the time of creating the user profile in a user taste study means is characterized by making into the mark in the theme of the program the unique number of the keyword of the theme dictionary contained in the information which shows the content of said program in a program recommendation system according to claim 9 or 10.
[Claim 12] The program recommendation system by which the classification according to theme at the time of creating the user profile in a user taste study means is characterized by for the keyword of the theme dictionary contained in program information stating, and making a number into the mark in the theme of the program in a program recommendation system according to claim 9 or 10.
[Claim 13] It is the program recommendation system characterized by setting to a program recommendation system according to claim 9 to 12, and for a recommendation program decision means integrating and totaling the numeric value given to the theme corresponding to the numeric value given to two or more themes for every program, respectively in a user profile, and considering the result as whenever [recommendation].
[Claim 14] It is the program recommendation system characterized by what the name of the theme which contributed to recommendation most when displaying the list of recommendation programs also doubles a recommendation program decision means in a program recommendation system according to claim 9 to 13, and is displayed.
[Claim 15] It is the program recommendation system characterized by a user taste study means creating a user profile according to an individual about two or more users in a program recommendation system according to claim 9 to 14.
[Claim 16] The program recommendation system characterized by the information which shows the content of the program being EPG data in a program recommendation system according to claim 9 to 15.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the program recommendation approach and program recommendation system which recommend the TV program suitable for a user's taste using the information which shows the content of the TV program.
[0002]
[Description of the Prior Art] The taste to a user's program is judged from actuation of program viewing and listening of a user etc., and the system which recommends a program using the text information on EPG is known from the former. In the conventional system currently indicated by JP,7-135621,A it was a thing only in consideration of a keyword to decompose the EPG text information on the program which a user likes, and to count the frequency of occurrence of a keyword etc.
[0003]
[Problem(s) to be Solved by the Invention] By approach which was mentioned above, since the keyword which occurs frequently is not necessarily a characteristic keyword, an unexpected program may be recommended.
[0004] Moreover, a general noun may be unable to be treated well. For example, the word an "incident" may appear as an EPG text of a suspense drama, if it may appear as an EPG text of a report program. However, it is thought that there is a being clear difference in a report program and a suspense drama from a viewpoint of people's taste. Therefore, when only the keyword an "incident" is simply counted to a profile, the same contribution will be given to whenever [recommendation / of the program from which character is completely different].
[0005] Furthermore, only a program with the high keyword of a score is recommended, and if it is human being, the program containing another keyword which can be guessed easily cannot be recommended.
[0006] This invention is made in view of the trouble which a Prior art which was mentioned above has, and it aims at realizing the program recommendation approach and program recommendation system which enable flexible program recommendation which was not obtained and enable high recommendation of precision in the conventional keyword study.
[0007]
[Means for Solving the Problem] The program recommendation approach of this invention is the program recommendation approach performed with the equipment which receives the broadcast to which a program is sent with the information which shows the content of the program. The user profile which shows the program which a user likes by

two or more themes given to the numeric value by each is created. The theme dictionary in which the keyword was given to each of two or more of said themes is used. The classification according to theme which gives each of two or more themes a numeric value is performed about each of two or more programs, and it is characterized by determining the program recommended from said user profile and the numeric value of two or more themes given to each of two or more programs.

[0008] In this case, when the user performed the classification according to theme to the program which performed program reservation, or two or more programs which were specified as a favorite program in the past, it is good also as creating a user profile.

[0009] Moreover, it is good also as the classification according to theme at the time of creating a user profile making the unique number of the keyword of the theme dictionary contained in the information which shows the content of said program the mark in the theme of the program.

[0010] Moreover, it is good also as the keyword of the theme dictionary contained in program information stating, and the classification according to theme at the time of creating a user profile making a number the mark in the theme of the program.

[0011] Moreover, it is good also as integrating and totaling the numeric value given to the theme corresponding to the numeric value given to two or more themes for every program, respectively in a user profile, and considering the result as whenever [recommendation].

[0012] Moreover, in case the list of recommendation programs is displayed, it is good also as doubling and displaying the name of the theme which contributed most on recommendation.

[0013] Moreover, it is good also as creating a user profile according to an individual about two or more users.

[0014] Moreover, it is good though the information which shows the content of the program is EPG data.

[0015] The program recommendation system of this invention is a program recommendation system performed with the equipment which receives the broadcast to which a program is sent with the information which shows the content of the program. The user profile which shows the program which a user likes by two or more themes given to the numeric value by each is created. Moreover, a user taste study means to perform the classification according to theme which gives each of two or more themes a numeric value about each of two or more programs using the theme dictionary in which the keyword was given to each of two or more of said themes, It is characterized by having a recommendation program decision means to determine the program recommended from said user profile and the numeric value of two or more themes given to each of two or more programs.

[0016] In this case, a user taste study means is good also as creating a user profile, when the user performed the classification according to theme to the program which performed program reservation, or two or more programs which were specified as a favorite program in the past.

[0017] Moreover, it is good also as the classification according to theme at the time of creating the user profile in a user taste study means making the unique number of the keyword of the theme dictionary contained in the information which shows the content of said program the mark in the theme of the program.

[0018] Moreover, it is good also as the keyword of the theme dictionary contained in program information stating, and the classification according to theme at the time of creating the user profile in a user taste study means making a number the mark in the

theme of the program.
[0019] Moreover, a recommendation program decision means is good also as integrating and totaling the numeric value given to the theme corresponding to the numeric value given to two or more themes for every program, respectively in a user profile, and considering the result as whenever [recommendation].
[0020] Moreover, in case a recommendation program decision means displays the list of recommendation programs, it is good also as doubling and displaying the name of the theme which contributed most on recommendation.
[0021] Moreover, a user taste study means is good also as creating a user profile according to an individual about two or more users.
[0022] Moreover, it is good though the information which shows the content of the program is EPG data.
[0023]
[Embodiment of the Invention] Next, the example of this invention is explained with reference to a drawing.
[0024] Drawing 1 is the block diagram showing the program recommendation structure of a system by this invention.
[0025] In this example, the EPG (Electronic Program Guide) data equivalent to an electronic television race card currently performed as data broadcasting by digital satellite multi-channel broadcast as information which shows the content of the television program in a text are used. Although the user of digital satellite multi-channel broadcast uses in order to display this EPG data on the screen of a receiver and to look for a favorite program, he recommends further the program which suited a user's taste from EPG data in this example. In addition, in this example, although EPG data are used, it is not limited especially, and if the information which shows the content of broadcast of a program in a text etc. is broadcast with a program, it is applicable to this invention.
[0026] The system shown in drawing 1 is equipped with the function which displays the program which manages and stores [acquire and] the EPG data contained in a broadcast wave, and recommends them by receiving and accumulating the image voice of the tuned-in television broadcasting as digital AV data while image transcription playback of a program is possible.
[0027] This example shows the configuration of the important section for carrying out this invention, and is prepared in the television television inside of a plane. Actually, though natural, the common equipment which constitutes television receivers, such as the display tube, is also formed.
[0028] This example consists of a tuner 101, the EPG data acquisition section 102, the AV encoder 103, a system controller 104, the EPG Management Department 105, the data storage 106, an AV decoder 107, the information-display section 108, and a control unit 109. A system controller 104 receives the input of a control unit 109, and controls each part according to this input, and actuation of each part explained below is made by control of a system controller.
[0029] Actuation of each block is explained below.
[0030] First, the channel considered as a request with a tuner 101 using the television broadcasting wave received through the antenna (un-illustrating) tunes in. The tuned-in broadcast wave is sent to the EPG data acquisition section 102 and the AV encoder 103, and extracts the EPG data contained in a broadcast wave in the EPG data acquisition section 102. In addition, the VBI (Vertical Blanking Interleave) method which inserts data in the Vertical Synchronizing signal of an analog television signal is learned as an approach of including EPG data in a television broadcasting wave.

[0031] The EPG data extracted in the EPG data acquisition section 102 are sent to the EPG Management Department 105, and are stored and managed by the EPG Management Department 105. The EPG Management Department 105 may consist of CPUs (un-illustrating) prepared in a system controller 104 using RAM which can carry out direct access, and may constitute using secondary storage, such as a hard disk drive unit.
[0032] Moreover, the video signal and sound signal of a broadcast wave which were tuned in with the tuner 101 are changed into digital AV data with the AV encoder 103. It is accumulated in the data storage 106 constituted as this secondary storage. As a format of digital data, it is not limited especially about a format of digital data that what is necessary is just to use MPEG 2 etc., either.
[0033] Reading appearance of the are recording data of the data storage 106 is carried out, and reproducing the program recorded on videotape is decoded by a video signal and the sound signal by the AV decoder 107. At this time, it is inputted into the information-display section 108 about a video signal, and in the information-display section 108, the user interface screen to the user based on EPG data is generated to the inputted video signal, the signal superimposed on the program image is generated, and it considers as a final video output.
[0034] A control unit 109 receives the input from a user, and is constituted by the infrared remote controller specifically prepared independently of the body, and the infrared light sensing portion and panel switch which are prepared in a body side.
[0035] In addition, although this example described below has described the configuration which compresses the image voice of a program into digital data, and is saved at data storage, it is also possible to constitute from a method which carries out an analog image transcription on the video tape represented by VHS. Moreover, although aimed at analog television broadcasting as a broadcast wave, it is also possible to be aimed at the digital television broadcast by which broadcast will be planned at home from now on.
[0036] Moreover, although the case where EPG data are contained in the broadcast wave is assumed in this example, broadcast waves, such as the Internet, may be systems which acquire EPG data through a different communication medium.
[0037] Drawing 2 is drawing for explaining the actuation for determining and displaying the program to recommend performed in the example shown in drawing 1 . Although actuation of this example is performed by control of a system controller 104 according to the program defined beforehand, it is the block diagram showing the important section which is needed in case this program is performed to drawing 2 including the file created in case a program is performed.
[0038] The program configuration in this example consists of the race card display means 121, the program reservation means 122, the user taste study means 123, the recommendation program display means 124, the recommendation program decision means 125, the EPG management tool 126, the program reservation data 127, the theme classification means 128, a user profile 129, EPG data 130, and a theme dictionary 131, as shown in drawing 2 .
[0039] The user taste study means 123, the recommendation program decision means 125, and the theme classification means 128 are equivalent to the system controller 104 shown in drawing 1 , and the EPG Management Department 105 which showed drawing 1 deserves the EPG management tool 126. The race card display means 121 and the recommendation program display means 124 are equivalent to the information-display section 108 shown in drawing 1 , and the program reservation means 122 is equivalent

to the control unit 109 shown in drawing 1 . The program reservation data 127, a user profile 129, and the theme dictionary 131 are built in the data storage 106 shown in drawing 1 .

[0040] The processing outline in this example is explained with reference to drawing 2 .

[0041] The program display means 121 displays a race card based on the EPG data managed with the EPG management tool 126. A user specifies image transcription reservation of the program by the program reservation means 122, and a favorite program to the displayed race card. Being able to presume the reserved program to be the program which a user likes, the user taste study means 123 recognizes the specified program and the reserved program as a user's favorite program, and further, the program information by the EPG data corresponding to the program is acquired from the EPG management tool 126, and it computes the score to the program using the theme classification means 128.

[0042] In this example, the score to a program is given to the theme defined beforehand. Here, it is the concept which expresses the content of a program as a theme characteristic, and the keyword belonging to a theme and its theme is beforehand prepared for the theme dictionary 131. For example, to the theme a "hot spring", "hidden waters", an "open-air bath", etc. are made into a keyword, and let them be the element of the theme dictionary about a "hot spring." The theme classification means 128 makes the keyword of the theme dictionary 131 prepared for every theme, and the program information by the EPG data of a program correspond, and calculates the score to a theme according to the matching result.

[0043] By total of a user of the mark for every theme of a favorite program calculated as mentioned above, the user taste study means 123 creates the user profile 129 showing the taste of a user's program.

[0044] The program recommendation means 125 determines the program to recommend, and calculates whenever [recommendation] using the mark and the user profile 129 for every theme of each program. Being able to predict it as the program which a user likes, so that whenever [recommendation] is high, the recommendation program display means 124 displays a program name in order of the high program of whenever [recommendation].

[0045] Next, actuation of the theme classification means 128 which is the description of this invention is explained.

[0046] The theme in this invention is a concept which expresses the content of a program that it mentioned above characteristic. Although a program name and a performer name are described by the response part about a time zone 161 and a channel 163 as a general race card is shown in drawing 4 , as illustrated to EPG data at drawing 3 , it consists of the program title 141, broadcasting hours 142, a channel 143, a performer 144, a genre 145, and program explanation 146, and the information on a genre 145 will express the content of a program directly. However, a "genre" does not aim at classifying the content of a program finely, but the number is about several ten pieces from ten pieces. On the other hand, the theme in this invention assumes the number of themes of about several 100 pieces by this example aiming at a finer partition.

[0047] In this invention, the theme dictionary 131 which is a dictionary of the keyword which belongs to a certain theme for the classification according to theme is used. Drawing 5 is an example of a theme dictionary, for example, the dictionary keywords 152, such as a "hotel", a "hotel", a "train window", a "sea trip", and a "highway", are contained about the "trip" theme 153. The fundamental idea of a theme classification is

mark-izing the number of the dictionary keywords of the theme contained there as a degree relevant to the theme of the sentence, and classifying it, when a certain character string is given. In addition, the dictionary keyword of a theme may overlap another theme. The keyword the "earth" is contained in both "science" theme 156 and "nature" theme 158 in the example shown in drawing 5 .

[0048] Based on the view of the above themes, the theme classification means 128 calculates the theme and mark of the program by analyzing the EPG data of a program. The flow of the processing of the classification according to theme to a certain program Pi is shown in drawing 7 .

[0049] First, then it sets up processing the theme Tj to Program Pi (step 202,202), the keyword contained in the program explanatory note of Program Pi about the classification theme Tj using the theme dictionary of Theme Tj is extracted (step 203). As extract processing in here, simple character string matching is sufficient, the morphological analysis which is the technique which sentential calculus is sufficient as and is used may be applied, and keyword extraction may be performed. The extract with latter exact one is possible.

[0050] Next, let the unique number be the theme mark K in Program Pi and Theme Tj (Pi, Tj) about the extracted keyword (step 204). If the keyword is not contained, the theme mark K (Pi, Tj) are set to 0. A unique number is a count which sets to 1 instead of the count of an extract the same keyword by which the multiple-times extract was carried out. Although the unique number is made into theme mark here, it is good also considering the number of stretching counted by the count of plurality as theme mark. This should just choose one of technique from the inclination of an object document, or the inclination of a theme dictionary.

[0051] Furthermore, if it checks whether it has extracted about all themes (step 205) and is carried out about no themes, step 204 is repeated and ****(ed) from step 202, and when carried out, it considers as termination. Thus, the theme and mark of Program Pi are calculated as a table.

[0052] The example of the table obtained by drawing 6 by the classification according to theme is shown. This is the result of classifying the program of "the science special "Mars"" in drawing 3 , and the title "a trip "Kusatsu"", a theme exception using the theme dictionary 131 with the content of the theme classification means 128 and drawing 5 . since the keyword a "robot", a "technique", and "Mars" was contained to "science" theme in the former program explanatory note -- mark -- 3 -- similarly, by the "robot", "computerization" is set to 1 "with water" and "nature" is set to 1. The latter is processed similarly and it becomes theme mark as shown in a table.

[0053] Next, the procedure which learns a user's taste in the user taste study means 123 is explained.

[0054] The program which the user specified as the favorite program through the program reservation means 122 to the race card which the race card display means 121 displayed, and the program which the user reserved are inputted into the user taste study means 123 as a user's favorite program. The theme to these favorite programs is classified, it learns [on the theme of a user's taste], and it is memorized as a user profile 129.

[0055] Drawing 8 is a flow chart which shows the processing performed by user taste study **** 123.

[0056] First, it sets up processing the user profile to the program FPi which is one of that it is study of user taste, and the programs which a user likes (step 211,212).

[0057] Next, the theme mark K in Theme Tj (FPi, Tj) are calculated to the program FPi

which a user likes using the theme classification means 128 (step 213). Next, the theme mark K (FPi, Tj) are added to the theme mark PR of the user PUROFU file to Theme Tj (Tj) (step 215). In addition, initial value of PR (Tj) is set to 0.

[0058] Next, it checks whether it has calculated about all themes (step 215), when calculating about no themes, step 214 is repeated from step 213, and when it is checked that count had been performed about all themes, it is checked whether count has been further performed about all a user's favorite programs (step 216). When count is not performed about all a user's favorite programs, steps 212-216 are repeated, and when count is performed about all a user's favorite programs, it considers as termination.

[0059] Also in the classification according to theme performed in the case of user profile creation, it is good also considering the number of stretching which is good also as theme mark and counts the unique number by the count of plurality about the extracted keyword like the classification according to theme over a program as theme mark. This should just choose one of technique from the inclination of an object document, or the inclination of a theme dictionary.

[0060] Moreover, it is good also as supposing that it removes with a predetermined number according to the number of favorite programs, and attaining equalization (for example, when the number of programs is 20, it divides by 2, and when the number of programs is 30, it divides by 3).

[0061] Furthermore, a user profile is good also as creating according to an individual to two or more users. This can be easily realized by inputting the code which shows each one of users etc., when specifying as program reservation or a favorite program.

[0062] Drawing 10 is drawing showing an example of the profile obtained by user taste study. The example shown in drawing 10 is the result of the theme mark PR (Tj) of the condition which nothing is learning, i.e., a profile, performing altogether processing shown in drawing 8 to the theme score of the program shown in drawing 6 from the condition of 0. Thus, theme mark are integrated.

[0063] Next, the procedure of determining the recommendation program which the recommendation program decision means 125 performs and which met a user's taste based on the user profile 129 is explained using the flow chart of drawing 9 .

[0064] First, determining a recommendation program is set up (step 221) and recommendation whenever R (Pi) is initialized by 0 about the program Pi which is one of the programs for recommendation (step 222). Next, the theme mark K of the program Pi about the theme Tj to which its attention is paid (Pi, Tj) are calculated using the theme classification means 128 (step 223), and the theme score PR of a profile (Tj) and the product of the theme mark K (Pi, Tj) are added to recommendation whenever R (Pi) (step 224).

[0065] Next, steps 223-224 are manipulated and it asks for a return deed and final recommendation whenever R (Pi) until it checks whether all themes have been processed (step 225) and processing is made about all themes.

[0066] Furthermore, it carries out by repeating steps 222-225 until it checks whether all the programs for recommendation have been processed (step 226) and processing is made about all the programs for recommendation. Thus, after obtaining to recommendation [of each program] whenever R (Pi), the program for recommendation is sorted in the big order of R (Pi), and n high orders are made into a recommendation program (step 227). n should just specify the maximum number in a program recommendation display for ten etc. pieces etc.

[0067] For example, if recommendation [of a program with theme mark as shown in drawing 11] whenever R (Pi) is calculated to the user profile shown in drawing 10 ,

since the product of a score of "science" and "nature" theme will be totaled, it is as follows.
[0068] whenever [recommendation] -- R(Pi) =3 [score of "science" theme of user profile] x2 [score of "science" theme of program] +2 [score of "nature" theme of user profile] x1 [score of "nature" theme of program] =8 -- in the program with the higher theme mark of a program about the theme of the high score by the user profile, as mentioned above, whenever [recommendation / of a program] becomes high by processing shown in drawing 9 . A user profile mark-izes a user's theme taste, and since the program which matched the distribution is selected, the program which suited liking of a user in the viewpoint of a theme classification will be recommended.
[0069] The user taste study stated by this example and the procedure of program recommendation are based on the very simple approach of the sum of products of the user profile count by the accumulation of a theme score, and program theme mark. However, it is not restricted to this approach but technique, such as Bayes estimation widely used by pattern recognition, text matching, etc. as more advanced procedure, may be used.
[0070] Drawing 12 is an example of the screen which a recommendation program display means 124 to show a user a recommendation program outputs. In the example to illustrate, the recommendation program is shown in the high order of whenever [recommendation / of a program] the list table, and it is displayed as a chart which uses the program title 175, a channel 176, broadcasting hours 177, and a genre 178 as an element.
[0071] Another example of the screen which the recommendation program display means 124 outputs is shown in drawing 13 . In addition to the element in the example shown in drawing 12 , in the example to illustrate, the theme 179 which displays the name of the theme which contributed to recommendation greatly is added. The theme name displayed here is the name of the theme Tj whose value of product-(Tj) xK (Pi, Tj) of the theme mark of Program Pi was the highest in count of step 224 of drawing 9 . Thereby, since it turns out by what kind of reason the user was recommended, he tends to guess the content of the program.
[0072] drawing 12 and 13 -- it can be alike, respectively, it can set, one of the recommendation programs by which it was indicated by the list can be chosen, and image transcription reservation of it can also be carried out through the image transcription reservation means 122. [moreover,]
[0073]
[Effect of the Invention] Since a user's taste is caught with the taste of a program theme and the 1st effectiveness of this invention learns it, it is a point whose flexible program recommendation which was not obtained in the conventional keyword study is attained. It is because theme mark are calculated in analyzing the explanatory note of a program using the dictionary which consists of keywords contained in a theme and its theme and it is learned as a user's taste.
[0074] Since the 2nd effectiveness can eliminate a-less ****** word and an abstract word by carrying out a theme classification only using the keyword in a theme dictionary, it is a point whose high recommendation of precision is attained. Furthermore, since the keyword belonging to some themes can also make the score of one theme high by the hit of other keywords, it is being able to eliminate the ambiguity of a general noun.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the program recommendation structure of a system by this invention.
[Drawing 2] It is drawing for explaining the actuation for determining and displaying the program to recommend performed in the example shown in drawing 1 .
[Drawing 3] It is drawing showing the example of EPG data.
[Drawing 4] It is drawing showing an example of a race card.
[Drawing 5] It is drawing showing an example of a theme dictionary.
[Drawing 6] It is drawing showing the example of the table obtained by the theme classification.
[Drawing 7] It is drawing showing the flow of processing of a theme classification.
[Drawing 8] It is the flow chart which shows the processing performed by user taste study **** 123.
[Drawing 9] It is the flow chart which shows the procedure of determining the recommendation program which the recommendation program decision means 125 performs, and which met a user's taste based on the user profile 129.
[Drawing 10] It is drawing showing an example of the user profile obtained by user taste study.
[Drawing 11] It is drawing showing an example of the theme mark which a program has.
[Drawing 12] It is an example of the screen which a recommendation program display means 124 to show a user a recommendation program outputs.
[Drawing 13] It is an example of the screen which a recommendation program display means 124 to show a user a recommendation program outputs.
[Description of Notations]
101 Tuner
102 EPG Data Acquisition Section
103 AV Encoder
104 System Controller
105 EPG Management Department
106 Data Storage
107 AV Decoder
108 Information-Display Section
109 Control Unit
121 Race Card Display Means
122 Program Reservation Means
123 User Taste Study Means

124 Recommendation Program Display Means
125 Recommendation Program Decision Means
126 EPG Management Tool
127 Program Reservation Data
128 Theme Classification Means
129 User Profile
130 EPG Data
131 Theme Dictionary

[Translation done.]

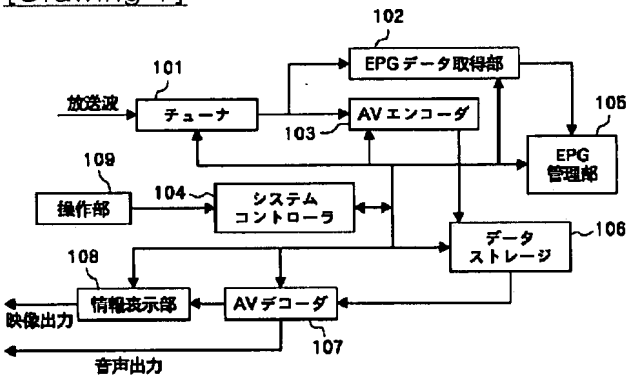
* NOTICES *

JPO and INPIT are not responsible for any
damages caused by the use of this translation.

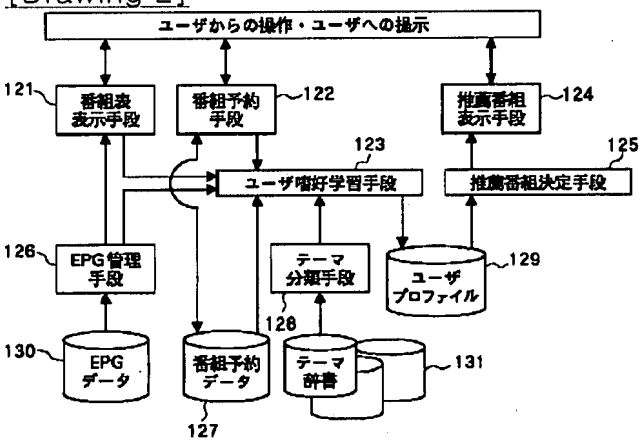
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]



[Drawing 2]



[Drawing 3]

141 番組タイトル	142 放送時間	143 チャンネル	144 出演者	145 ジャンル	146 番組説明
7時のニュース	8月10日 19:00-19:30	1MHK		報道	林首相退陣▽景気回復の兆しは見えたか？◇明日の天気
科学のスペシャル「火星」	8月10日 20:00-22:00	3教育		科学	技術の粋を集めて製作された火星探査ロボットについて解説。過去に水があり、生命が存在していたかどうかを探る。
旅「草津」	8月10日 20:00-21:00	4XTV	小島康子　田中弘	紀行	人気旅館の露天風呂を紹介。紅葉真っ盛りのロマンチック街道を訪れる。日本風の宿の懐石料理にしたつづみ。

[Drawing 4]

161

	1MHK	3教育	4XTV 162
19	7時のニュース	健康　腰痛	旅「草津」
	フォーカス	にんげん	
20	クイズ出たとこ勝負　山田健一 北村幸子	科学スペシャル「火星」	世界の歴史 エジプトの歴史を探る
	ニュース・天気		
21	MHKスペシャル「IT革命」		映画「明日に架ける橋」 ジョン・スミス ロバート・ショー

[Drawing 5]

	151 テーマ	152 辞書キーワード
153	旅	旅館、宿、車窓、船旅、街道
154	温泉	秘湯、露天風呂、いで湯、湯けむり
155	料理	懐石、フランス料理、イタリア料理
156	科学	ロボット、科学者、技術、太陽、地球、火星
157	情報化	インターネット、ロボット、パソコン
158	自然	地球、水、緑、紅葉

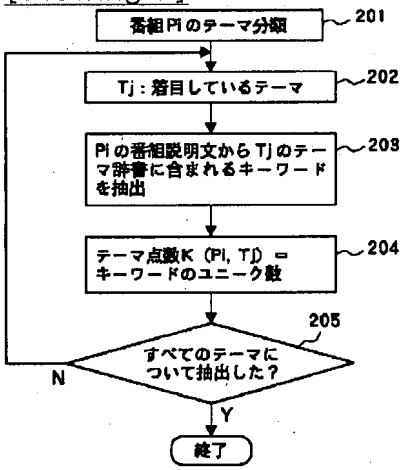
[Drawing 10]

168 テーマ	169 点数
科学	3
情報化	1
自然	2
旅	3
温泉	1
料理	1

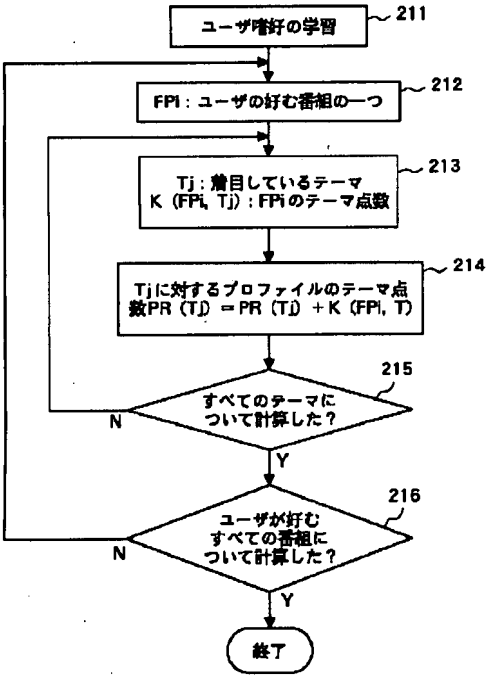
[Drawing 6]

165 番組（タイトル）	166 テーマ	167 点数
科学スペシャル「火星」	科学	3
	情報化	1
	自然	1
旅「草津」	旅	3
	温泉	1
	料理	1
	自然	1

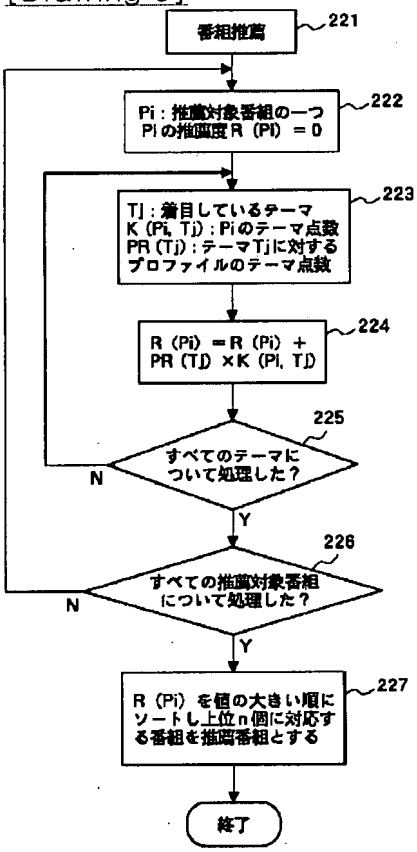
[Drawing 7]



[Drawing 8]



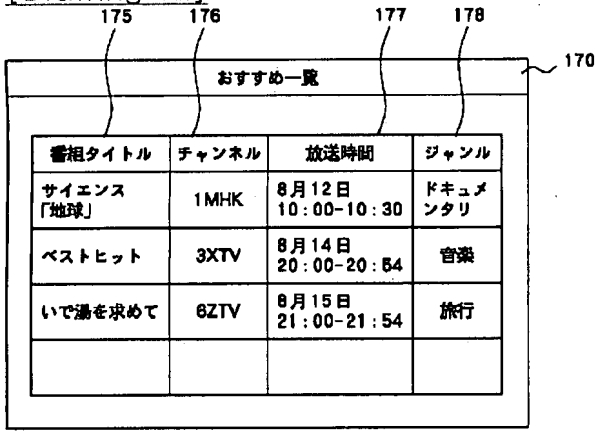
[Drawing 9]



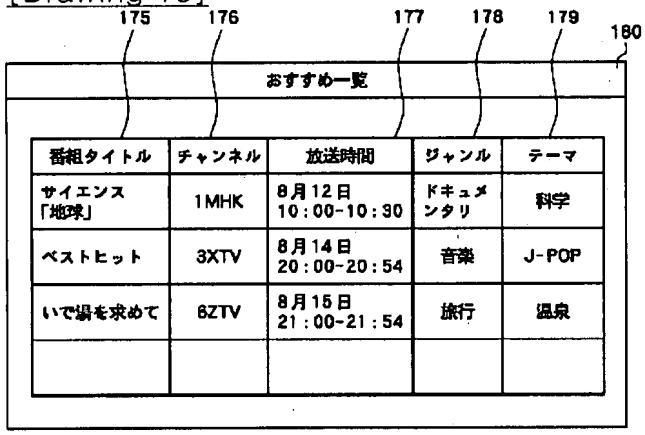
[Drawing 11]

番組（タイトル）	テーマ	点数
サイエンス「地球」	科学	2
	自然	1

[Drawing 12]



[Drawing 13]



[Translation done.]